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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/505,219

03/22/2005

Hideo Hosono

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EXAMINER

SUCH, MATTHEW W

ART UNIT

PAPER NUMBER

2891

MAIL DATE

DELIVERY MODE

06/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/505,219

Applicant(s)

HOSONO ET AL.

Examiner

Matthew W. Such

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 10 is/are allowed.
- 6) ☒ Claim(s) 8,9 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 20 August 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities: the word “unusability” on Line 23, Page 8 should read “usable”; the word “neodimium” on Line 4, Page 12 should read “neodymium”.

Appropriate correction is required.

Claim Objections

3. Claim 11 is objected to because of the following informalities: the word “black” in Lines 1 and 3 should read “block”; the phrase “the LnCuOX” should read “a LnCuOX”; the phrase “the Ln_{1-y}MyCuOX” should read “a Ln_{1-y}MyCuOX”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim requires a material of either LnCuOX or Ln_{1-y}MyCuOX, but does not define the materials of Ln, M and X.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 8-9 and, in so far as definite, claim 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Takano (J. Alloy & Cmpds.) who teaches a single crystal of LaCuOS or LaCaCuNiS. The Examiner notes that the term “thin film” is a relative term which does not limit the physical dimensions of the single crystal since the claim, as written, does not specify the degree to which the single crystal is “thin”. Therefore, any arbitrary size meets the claim. The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Pearson*, 181 USPQ 641 (CCPA); *In re Minks*, 169 USPQ 120 (Bd Appeals); *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). See MPEP §2114. The recitations of “light-

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emitting diode”, “semiconductor laser”, “field-effect transistor”, and “hetero-bipolar transistor” does not distinguish the present invention over the prior art of Tauber who teaches the structure as claimed. Regarding the term “building block”, the Examiner notes that the manner in which the term is used does not actually require that the element be included in any device, merely that it be a “building block”. As such, the “building block” could be part of an apparatus used to construct a device, and not be included within the device.

8. In so far as definite, claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Tauber ('716) who teaches a single crystal of, for example, YBaCuO, LaBaCaCuO, etc. The Examiner notes that the term “thin film” is a relative term which does not limit the physical dimensions of the single crystal since the claim, as written, does not specify the degree to which the single crystal is “thin”. Therefore, any arbitrary size meets the claim. Further, since the claim does not define what elements constitute Ln, M, and X, any arbitrary materials meets the claim. The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Pearson*, 181 USPQ 641 (CCPA); *In re Minks*, 169 USPQ 120 (Bd Appeals); *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). See MPEP §2114. The recitations of “light-emitting diode”, “semiconductor laser”, “field-effect transistor”, and “hetero-bipolar transistor” does not distinguish the present invention over the prior art of Tauber who teaches the structure as claimed. Regarding the term “building block”, the Examiner notes that the manner in which

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the term is used does not actually require that the element be included in any device, merely that it be a “building block”. As such, the “building block” could be part of an apparatus used to construct a device, and not be included within the device.

Allowable Subject Matter

9. Claims 1-7 and 10 are allowed.

10. The following is an examiner’s statement of reasons for allowance: A search of the prior art does not disclose or reasonably suggest a method of producing a single crystal of LnCuOX as claimed in claims 1 and 10 wherein a base film is grown on a single crystal substrate, an LnCuOX film is deposited thereon and heated to 500 degrees Celsius or more in a vacuum.

The closest found prior art of Ueda (Appl. Phys. Lett. Vol. 77 and Vol. 78, as cited on IDS) teaches a method of forming LnCuOX films on a substrate and heating to 800 degrees Celsius in a vacuum, but that the resulting film is polycrystalline, not single-crystal (Left Column, Page 2334). Ueda does not disclose or reasonably suggest that the substrate is single crystal or that a base film be grown on the substrate. Ueda further suggests that a method to produce a single-crystal LnCuOX still needs to be developed (Right Column, Page 2335).

The closest found prior art of Takano teaches forming LnCuOX single-crystal films by depositing polycrystalline LnCuOX on a substrate (quartz tube) and heating above 500 degrees Celsius in a vacuum (Left Column, Page 222), but does not disclose or reasonably suggest that the substrate is single crystal or that a base film be grown on the substrate.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- i. Kuo ('687) teaches forming a light-emitting device with LaCuOS as a "building block", such as an electrode;
- ii. Ishikawa (J. Electrochem. Soc.) teaches preparation methods and electrical properties of LnCuOS materials;
- iii. Kawasaki ('962) and Bradle, Jr. ('267) teaches devices with lanthanides, copper and oxygen in single crystal layers.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is (571) 272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew W. Such
Examiner
Art Unit 2891

MWS
6/12/07


Chandra Chaudhari
Primary Examiner